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Assistance Available from the Soil Conservation Service

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Assistance Available from the Soil Conservation Service

How can Americans continue to produce adequate supplies of food, fiber, and other goods from the land while protecting the quality of the environment? To help answer this question, the Soil Conservation Service (SCS) plans and carries out programs for protecting and developing the Nation's soil, water, and related resources.

In the early 1930's, erosion was stripping topsoil from America's farms at a dangerous rate. In response to this crisis, Congress in 1935 established SCS as an agency of the United States Department of Agriculture (USDA).

The SCS mission covers three major areas: soil and water conservation, natural resource surveys, and rural community protection and development. The help SCS provides is technical and in some cases financial. Some technical assistance also is provided to other countries under arrangements made through the Agency for International Development.

To carry out its mission, SCS has created a network of conservation specialists who help people understand and protect their land. The SCS staff includes soil conservationists, soil scientists, agronomists, biologists, economists, foresters, geologists, landscape architects, plant materials specialists, range conservationists, resource planning specialists, cartographers, environmental specialists, recreation specialists, and engineers—agricultural, irrigation, hydraulic, drainage, and civil.

Through locally organized and locally run conservation districts, SCS provides technical assistance to help individuals, groups, organizations, and units of government conserve soil and water resources. The districts, which generally follow county lines, include almost all the privately owned land in the United States.

At the district level, SCS soil conservationists provide onsite assistance. They are trained to help land users select and adapt conservation practices and systems to solve specific problems.

Soil conservationists help land users plan and carry out conservation measures as part of a total resource management system. For example, they help land users to plan and lay out terraces to catch rain where it falls, to select cropping methods that reduce erosion on the land, to manage forage and forest resources, to plan and build a pond that will provide both recreation and a reliable water supply, or to install temporary structures for erosion control at construction sites.

If the soil conservationists need additional help, they can turn to specialists in SCS: engineers to design dams that control flooding and irrigation systems that conserve water, range conservationists to help maintain or restore the productivity of native grazing land, biologists to develop habitat for fish and wildlife, and others.

Through conservation districts, SCS also helps urban groups and government agencies solve soil and water problems. The help ranges from resource information to onsite technical assistance, and cost sharing is available through several programs. For example, SCS provides guidelines for controlling erosion on roadsides, construction sites, and other developments—erosion that adds



Patterns of this level terrace system show how runoff is intercepted so that it soaks into the soil instead of forming rills and gullies.

sediment to streams and reservoirs and increases the costs of water purification and road maintenance. It provides information about soils and their potential and limitations as sites for housing developments, recreation, waste disposal, roads, and many other uses. It provides technical and financial assistance for flood prevention and for recreation and resource development. SCS also helps state and local governments evaluate soil and water resources in programs of coastal zone management.

In 1977, SCS programs for protecting the Nation's land and water resources were strengthened by the Soil and Water Resources Conservation Act, a companion measure to the Resources Planning Act of 1974 administered by the Forest Service. The two laws direct USDA to assess America's natural resources—and to recommend ways to protect and improve them.

The Resources Conservation Act directs USDA to appraise the Nation's soil, water, and related resources, prepare a comprehensive 5-year program to guide conservation efforts, and evaluate ongoing conservation programs. This work is done in cooperation with citizen groups, conservation districts, and other federal, state, and local agencies.



SCS provides technical assistance to communities as well as to individuals. In this Ohio suburb, channel bank erosion had threatened to undermine adjacent houses. SCS designed a gabion structure—an arrangement of rock-filled wire baskets—to stabilize the channel banks.

SCS and conservation districts

Land users get help from SCS mainly through the nearly 3,000 local conservation districts in the United States.

The conservation district is a local unit of government organized by local residents under state law. Districts vary among states: some are subdivisions of state government, some of county government; some follow county borders, and some cover parts of counties or two or more counties.

Under state law, each conservation district is legally responsible for soil and water conservation work within its boundaries. District boards are locally elected; their job is to plan and carry out long-range programs as determined by the needs for conservation work in their districts. At the request of the district board, SCS assigns a district conservationist and a small staff to provide technical assistance to the district and its cooperating land users.

To qualify for many kinds of SCS technical assistance, land users sign a cooperative agreement with the district. Currently, there are more than 2 million district cooperators.

SCS technical assistance to land users takes many forms. In general, however, SCS assistance through the conservation districts includes

- Onsite assistance to land users in planning and carrying out a conservation program that meets their needs and the needs of their land.
- Basic soil information and interpretations of the potential and present condition of the land for many uses.
- Technical assistance in designing, laying out, and checking the construction and maintenance of dams, terraces, and other structures; in selecting plant varieties, seeding methods and rates, and cultural practices for establishing grass or trees; and in solving problems that arise in managing cropland, pasture, woodland, wildlife habitat, and other land.
- Information about adapted crops for each kind of soil.
- Information about alternative land uses and treatments for controlling erosion and reducing sedimentation.
- Assistance to units of government in inventorying natural resources and planning their wise use.
- Interpretive information on the potential and limitations of different kinds of soil for various uses to help city and county officials, engineers, land use planners, developers, contractors, builders, water quality planners, and others.

Cost-sharing programs

To encourage and assist land users in protecting the Nation's natural resources, USDA offers cost sharing as well as technical assistance. SCS administers or participates in cost-sharing programs that offer special assistance for protecting the Great Plains, installing certain conservation practices, protecting wetlands for migratory waterfowl and for other purposes, reclaiming abandoned surface-mined coal land, and improving water quality.

The Great Plains Conservation Program was authorized by Congress in 1956 primarily to protect the drought-prone Great Plains against wind erosion. SCS administers this program and offers technical assistance and cost-sharing payments to farmers and ranchers installing permanent conservation practices.

Top priorities in the Great Plains program are converting land poorly suited for cultivated crops back to grassland, reseeding depleted rangeland, and planting trees for wind protection. Practices also include stripcropping, terraces, diversions, fences, and stockwater systems.

The Great Plains program also offers assistance in improving



SCS provided technical assistance to help build this multipurpose farm pond. The pond provides water for livestock and facilitates rotation grazing. By storing rainfall runoff, it protects the land below it from erosion. The farm family uses the pond for swimming and fishing.

recreation resources, promoting economic uses of land, and controlling agriculture-related pollution.

The Agriculture Conservation Program offers cost sharing for applying certain soil and water conservation measures. It is administered by USDA's Agricultural Stabilization and Conservation Service (ASCS). SCS provides technical assistance in determining where conservation practices are practical and necessary, preparing conservation plans, and designing and laying out the practices. SCS also supervises and certifies proper installation of the practices.

The Water Bank Program, begun in 1972, is designed to preserve, restore, and improve wetlands as breeding and nesting areas for migratory waterfowl. SCS provides technical assistance in preparing and applying a conservation plan for the land owner or operator in important waterfowl areas. ASCS administers the funds for cost sharing.

Under the Rural Abandoned Mine Program (RAMP) authorized by Congress in 1977, SCS provides technical and financial assistance to landowners signing long-term contracts to reclaim certain abandoned coal-mined lands.

The first priority for assistance through RAMP is to protect public health, welfare, safety, and property from hazards caused by



Forty-six acres of this Minnesota farm are in the Water Bank Program. The protected acres provide habitat for waterfowl.

past surface coal mining or by surface effects of deep mining. Technical assistance and cost sharing offered through RAMP can be used to reclaim these lands for approved uses including pasture, range, woodland, cropland, noncommercial recreation, and wildlife habitat.

The Rural Clean Water Program, authorized by Congress in 1980, provides technical and financial assistance to owners and operators of rural land to help control nonpoint sources of water pollution. ASCS administers the program in approved projects; SCS helps participants prepare and apply water quality plans.

Natural resource surveys

Without accurate information on the extent and condition of the Nation's natural resources, a sound conservation program would be impossible. To provide this information, SCS conducts soil surveys, snow surveys for water supply forecasting in the West, and surveys of other national resources.

Soil surveys

SCS makes and publishes soil surveys, including maps, of agricultural and built-up areas. These surveys form the basis of nearly all conservation planning. They are carried out in cooperation with state agricultural experiment stations and other federal and state agencies. SCS also helps other agencies prepare special maps and reports based on soil surveys.

Soil surveys are important tools for planning the use and management of land and water resources. They are used by farmers and ranchers; city, county, state, and federal agency personnel; and land use planners, engineers, contractors, developers, builders, and others.

Each soil survey describes the physical and chemical characteristics of the soils in the survey area—generally a county. It names and classifies the soils according to a nationwide system and provides information on the potential and limitations of the soils for various uses. Detailed maps show where each soil is located. In making the survey, soil scientists determine the soils' texture, structure, chemical composition, depth, slope, and other features that affect their response to various uses and various kinds of management.

The survey is useful to many people, ranging from the farmer who wants to control erosion . . . to the engineer who needs to know what kind of structure the soil can support . . . to the planner looking for a suitable site for a municipal reservoir.

Many cities and more than 200 counties have provided extra funds to accelerate soil survey work so that they can make better land use decisions, whether their goal is to build roads or airports, reduce flooding, control sediment, develop housing and industry, protect wildlife, establish parks, or provide other environmental or economic benefits in the area.

Soils on more than 1.45 billion acres—about two-thirds of the Nation's land area—have been mapped, and the work is continuing at the rate of about 50 million acres per year. More than 1,200 soil surveys have been published.

Inventory and monitoring

The U.S. Department of Agriculture conducts a program to inventory and monitor national resources in cooperation with other federal, state, and local agencies. SCS has leadership of this program.

Through the program, SCS collects data on water and wind erosion, land use and quality, conservation treatment needs, flood-



SCS soil scientist determines soil color. Color and many other soil properties are clues to the soil's expected response to various land uses and kinds of management.

prone areas, irrigated land, wetland types 3 to 20, use of small water areas, potential cropland, and prime and other important farmlands.

Individuals, groups, and units of government use this inventory and monitoring information to make decisions on rural and community development; food, forage, and fiber production; soil and water conservation; rural energy use; retention of important farmlands; wetlands preservation; and environmental improvement.

Snow surveys and water supply forecasting

In the West, most of the water—for agriculture, domestic use, industry, and power—comes from snow that falls in the mountains. To find out how much water will be available in summer, SCS snow surveyors measure the mountain snowpack several times each winter. They determine the depth and water content of the snowpack and estimate the amount of runoff from mountain watersheds.

SCS has leadership within USDA for conducting the snow surveys in cooperation with other federal, state, and private agencies.

More than 1,200 snow surveyors from SCS and other agencies collect snow data from some 1,900 snow courses in remote and



Irreplaceable wetlands like this one in South Dakota need to be preserved.

rugged mountain areas of the West and British Columbia. Each winter they travel about 100,000 miles on skis, snowshoes, special oversnow machines, helicopters, and airplanes.

In recent years a network of automated radiotelemetry systems has been developed for use at selected mountain sites in collecting and transmitting snow survey data to central valley stations. As rapidly as funds allow, this network will be expanded to provide, almost instantly, information on present streamflow potential. The information will be especially valuable during periods of flood or drought.

The information collected by telemetric systems and snow surveyors is translated into water supply forecasts that SCS issues monthly from January to June. Major sectors of the western economy—agriculture, industry, and recreation—base their plans on these forecasts.

Soil and water conservation

SCS provides technical assistance for conservation work in cropland, pastureland, woodland, rangeland, mined and other disturbed areas, and recreation areas. It also helps land owners and operators conserve, manage, and improve water resources; improve and increase fish and wildlife habitat; and develop aquaculture.

SCS operates or provides technical assistance to 22 plant materials centers that follow a rigorous evaluation procedure to make available new plant cultivars useful in conservation work. SCS also helps educators design outdoor classrooms and incorporate conservation ideas in school curricula and teacher training programs.

Cropland and pastureland

SCS conservationists help land users maintain the productive capacity of cropland and pastureland through improved management. They work with land users to plan alternative cropping systems, conservation treatments, and soil management practices that will meet the wishes of the land users for production and conservation.

Through conservation districts, SCS conservationists provide information and onsite assistance to farmers on many practices that protect soil and water resources, such as conservation tillage, conservation cropping systems, efficient use of fertilizers, contour-

ing, terracing, stripcropping, and use of crop residues. They also help in managing pasture and hayland, establishing and maintaining grass waterways, treating critically eroding areas, and planning irrigation and drainage as needed.

SCS agronomists help soil conservationists prepare technical standards and specifications for agronomic practices that fit the local soil, climate, and other physical conditions. They also provide technical assistance in solving special or unique agronomic problems, such as reclaiming surface-mined land for crops or pasture.

Rangeland

More than one-third of the Nation's land area is privately owned rangeland, grazable woodland, and native pasture. This land is used mainly to produce forage for livestock. It also provides habitat for many kinds of wildlife, and the vegetation protects rangeland watersheds against erosion.

Rangeland is used extensively for hunting, fishing, hiking, camping, and other kinds of outdoor recreation. It provides the open space and scenery that make the outdoors more enjoyable. Because range is not cultivated or irrigated and is seldom fertilized, production of these benefits requires a minimum amount of fossil fuel energy.



Contour stripcropping controls erosion on this sloping field in Wisconsin.

The objective of SCS on native grazing land is to help the land user prepare and carry out a conservation plan for grazing use and management. By following this plan, the land user can maintain or improve the production and quality of vegetation, provide adequate returns to land and management, and maintain or improve wildlife habitat, watershed protection, and environmental quality.

SCS range conservationists help land users to identify, inventory, and evaluate their soil, water, plant, and animal resources; to choose the kinds of management and treatment that insure optimum use of the resources; and to apply the planned conservation measures.

SCS uses range inventory methods that bring together ecological principles and practical techniques for management. SCS coordinates the range inventory with the national cooperative soil survey so that basic information on range resources can be determined from published soil surveys.

Woodland

Nearly 60 percent of the Nation's commercial forest land is privately owned. SCS foresters and conservationists, in cooperation with conservation districts, assist owners and operators in planning the conservation use of their woodland resources. SCS also provides assistance in planning and applying erosion control measures on private forest lands. To serve the public more effectively, SCS coordinates its services with those of the Forest Service, state forestry agencies, and others.

As part of the national soil survey, SCS studies soil productivity to determine the relationship between tree growth and kinds of soil. Soil interpretations for woodland use and management are made, including those for site quality, adapted tree species, erosion hazard, equipment limitations, windthrow hazard, and seedling mortality.

Within USDA, SCS has the leadership in planning and establishing windbreaks, for which help is available through SCS offices. SCS helps land users design, plant, and manage windbreaks to get the optimum benefits of controlling wind erosion, protecting farmsteads and making them more attractive, providing wildlife habitat, and conserving energy.

Many areas of rangeland have been reseeded with native grasses such as bluestem, side-oats grama, and blue grama.



Viewed from the north, the farmstead windbreak in foreground protects farm buildings from high winds and drifting snow.

Water resources

SCS helps plan and design many practices that conserve water or improve water quality. Terracing and stripcropping retain water and snow. Windbreaks trap blowing snow that later melts, providing moisture for plants in spring and summer and contributing to ground-water supplies. Removing excess water in some kinds of soil is also important for sound water management and efficient crop production.

By far, the biggest single consumptive use of water in the United States is irrigation. To help farmers and ranchers irrigate effectively, SCS provides technical assistance for improving irrigation systems and management. Soil surveys, for example, help locate soils that would be productive and efficient users of irrigation water.

SCS conservationists plan and lay out concrete-lined irrigation ditches to eliminate seepage. They also help land users determine how much water to apply and when and how to apply it. Improved irrigation systems and management also improve water quality by reducing leaching and runoff.

Large areas of existing cropland are productive only because drainage practices have been installed. SCS helps land owners and operators plan and maintain drainage practices to insure the



Much of the work in the Colorado River Basin Salinity Control Program is being carried out in the Wellton-Mohawk Irrigation and Drainage District in Arizona. Here, a district landowner opens a jackgate to let water from an irrigation canal into a field of young alfalfa. By knowing the rate of flow, the landowner can determine how long to leave the jackgate open for efficient irrigation.

continued productivity of this cropland. SCS does not provide assistance in draining wetlands to create new cropland areas.

The Federal Water Pollution Control Act Amendments of 1972 (P.L. 92-500) set forth national goals for water quality: to restore and maintain the chemical, physical, and biological integrity of the Nation's waters. The Act calls for making our waters suitable for fishing and swimming by 1983 wherever practical.

Through conservation districts, SCS helps land users install conservation practices that control erosion, reduce runoff, and manage wastes. The practices improve water quality by reducing pollutants that can reach waterways—sediment, pesticides, nutrients, organic wastes, salts, leachates from saline soils, and mine tailings.

Mainly to help improve water quality, SCS provides technical assistance to farmers, ranchers, and communities in disposing of wastes. SCS soil scientists, agronomists, engineers, and other specialists combine their knowledge to find beneficial uses for these wastes so that adverse effects on air, soil, and water are reduced. Well-designed systems for waste management depend on the interaction of soil, plants, micro-organisms, sunlight, and oxygen to break down waste materials and recycle nutrients. SCS helps plan, design, and install systems for managing animal wastes, and it helps



In foreground is a manure holding pond designed to prevent stream pollution by holding waste from livestock and the milking parlor. The waste is spread on farm fields when conditions are suitable.

communities devise methods for recycling organic wastes through agricultural land.

In the arid West, SCS is working to reduce salinity in rivers, primarily by improving irrigation water management on farms. In the Colorado River Basin, for example, SCS in cooperation with the Department of the Interior's Bureau of Reclamation is helping plan and install practices such as land leveling, concrete-lined irrigation ditches, and structures for water control and measurement.

Disturbed areas

SCS agronomists and other specialists help in planning, establishing, and managing vegetation on disturbed or critically eroding areas.

These areas include mined land, coastal sand dunes destroyed by people or the weather, construction sites, gullies, blowouts formed by severe wind erosion, and areas where floods have destroyed streambanks or cut new channels.

Disturbed areas need to be stabilized, vegetated, and protected against further erosion; many can be reclaimed for farming, recreation, or other uses.



SCS conservationist examines wheat growing on reclaimed surface-mined land in North Dakota.

Fish and wildlife

SCS helps farmers, ranchers, and other land users establish and improve fish and wildlife habitat on their land. SCS conservationists suggest practical ways to integrate wildlife objectives with the existing farm or ranch operation. In addition, SCS provides technical assistance to landowners participating in the USDA Water Bank Program.

SCS conservationists and other specialists help farmers, ranchers, and other rural landowners select sites and plantings for a variety of wildlife: upland game, waterfowl, fish, and other wildlife. They help urban residents select shrubs and trees that attract songbirds, squirrels, and other wildlife.

Other SCS specialists provide technical assistance to individuals and firms engaged in aquaculture. They evaluate the suitability of the soils as sites for such facilities as ponds, reservoirs, and waste disposal systems, and they help design and lay out ponds and raceways. SCS biologists help land users with fish pond management, including advice on species selection, stocking rates, feeding, and maintaining water quality.



A Georgia pond built for channel catfish production. Five aerators maintain sufficient oxygen in the pond.

Environmental education

SCS provides assistance in environmental education primarily by working with state departments of education, colleges and universities, local education agencies, and youth groups.

SCS soil conservationists help school officials and teachers plan outdoor classrooms for environmental studies. They assist teachers and students who are studying environmental problems, for example, nonpoint source pollution in a local stream. They help teachers find ways to incorporate conservation throughout the school curriculum, for example, in courses of geography, economics, political science, and history.

To help teachers establish environmental education programs, SCS participates in workshops and seminars in cooperation with schools, teacher organizations, and other agencies.

SCS assists youth organizations such as Boy Scouts, Girl Scouts, 4-H Clubs, and Future Farmers of America in preparing environmental education programs and community improvement projects. SCS also provides onsite technical assistance in the development and conservation of camp properties.

In cooperation with textbook writers and producers of audio-visual materials, SCS helps incorporate fundamental environmental principles in these works.



Science instructor at a community college in Minnesota explains the features of good wetland habitat. Four shallow water impoundments have been built on the 14-acre natural area.

Recreation

The demand for outdoor recreation within reach of population centers has grown rapidly in recent years. SCS and conservation districts are helping meet this growing demand.

For example, small watershed projects and resource conservation and development areas frequently include public facilities for swimming, boating, fishing, picnicking, and camping. Many other conservation measures contribute to recreation, including small ponds and lakes built to increase water supplies on farms and ranches.

Recreation is likely to be part of a multiple-use plan for land and water resources. SCS helps land users plan for recreation on their land just as it helps them plan for crops, livestock, and timber. SCS has leadership in USDA for helping land users develop recreation resources, and it provides liaison with other federal, state, and local agencies that assist in recreation development.

The kind of help that SCS gives depends on the type of enterprise planned by the land users but generally includes

- Evaluating the suitability of the land for particular recreation enterprises and the conservation measures needed.
- Surveying the soils and determining their suitability for trees, shrubs, and grasses and their limitations for roads, building sites,



Recreation is an extra benefit of this 1-acre farm pond. The pond, stocked with bluegill and largemouth bass, also supplies water for irrigation, livestock, and fire protection.

septic tank absorption fields, water impoundments, trails, playgrounds, camp areas, picnic areas, wildlife habitat, and other uses.

Plant materials

More than 140 conservation plants released by SCS and cooperating agencies are in widespread use today—the result of continuing efforts by SCS to find plants that can help solve soil and water conservation problems.

Conservation plants reduce erosion and sedimentation and help improve water quality in many areas. For example, they help stabilize shorelines, streambanks, and highway embankments; revegetate surface-mined lands; improve soil productivity; provide food and shelter for wildlife and livestock; and control erosion in heavily used recreation areas.

The search for conservation plants began in the mid 1930's, when SCS found that in many places commercially available plants were not effective in controlling erosion. Cooperating with state and other federal agencies, SCS began evaluating native and introduced grasses, legumes, trees, and shrubs for specific conservation purposes.

The first step in the search for conservation plants is to deter-



'Emerald' crownvetch, tested and released by SCS, controls erosion at a freeway interchange in Iowa.

mine the conservation needs and priorities. This is done through SCS state conservationists. For instance, one priority in the Great Plains states is improved varieties of trees for windbreaks.

The next step is to assemble and evaluate plants to determine their potential and range of adaptation. To do this, SCS operates or provides technical assistance to 22 plant materials centers around the country.

Plants that show promise are increased at the centers, and their performance is tested and compared in field plantings made under actual-use conditions. If field testing is successful, the plants are increased through cooperative arrangements with conservation district cooperators, crop improvement associations, and state nurseries. The centers do not sell plants and seed, but instead release their selections to commercial nurseries and seed producers. In so doing, the centers work closely with state and other federal agencies, commercial firms, and seed and nursery associations.

Open to the public, the plant materials centers are located in Palmer, Alaska; Tucson, Arizona; Lockeford, California; Meeker, Colorado (Upper Colorado Environmental Plant Center); Brooksville, Florida; Americus, Georgia; Hoolehua, Hawaii; Aberdeen, Idaho; Manhattan, Kansas; Quicksand, Kentucky; Beltsville, Maryland; East Lansing, Michigan; Coffeeville, Mississippi; Elsberry, Missouri; Bridger, Montana; Cape May Court House, New Jersey; Los Lunas, New Mexico; Big Flats, New York; Bismarck, North Dakota; Corvallis, Oregon; Knox City, Texas; and Pullman, Washington.

Rural community protection and development

In support of USDA's rural development efforts, SCS helps rural communities protect and develop their land and water resources. SCS helps solve flooding problems, assists when natural disaster strikes, and promotes community development.

This assistance not only results in better resource management but also produces many social and economic benefits through improvement of community facilities, industrial development, commercial expansion, recreation, and strengthening of small farms and family farms.

Watershed projects

SCS administers watershed projects for the Department of Agriculture under Public Law 83-566. It also administers watershed work authorized by the Flood Control Act of 1944 (Public Law 78-534) in 11 major watersheds comprising about 30 million acres.

Rural and urban residents in hundreds of communities have learned that by working together through watershed projects they can help solve their land use and water problems. They can

- Reduce erosion, siltation, and flooding.
- Supply water for growing domestic and industrial needs.
- Attract new industries.
- Manage water for agriculture.
- Improve fish and wildlife resources.
- Provide opportunities for recreation.
- Recharge ground-water reservoirs.
- Improve and maintain water quality.

Through watershed projects, conservation measures are established on private and public land. Also, dams and other water control structures are built on upstream tributaries to insure effective water management.

Watershed projects begin with local initiative and responsibility. Local proposals are reviewed by the state, which may make financial and other assistance available. Federal technical and financial assistance is also available.

State agencies and qualified nonprofit local organizations can sponsor a watershed project. Qualified local groups include soil and water conservation districts; municipalities; counties; recreation and park districts; watershed, flood control, conservancy, drainage, and irrigation districts; and associations of water users.

A watershed project under Public Law 83-566 is limited to an area no larger than 250,000 acres. The project can be multipurpose.

The federal government gives technical help in planning and installing the project measures, pays the full cost of measures for flood prevention, and shares the cost of other measures. To help sponsoring organizations finance their share of the cost, it lends a maximum of \$5 million per project for a maximum of 50 years at a reasonable interest rate. To develop water supply for future municipal or industrial use, it can advance funds amounting to a maximum of 30 percent of the costs of a multipurpose reservoir and can defer payment for a maximum of 10 years without interest.

Major obligations of local sponsors are acquiring land, easements, and rights-of-way; awarding contracts for construction on private land or electing to delegate contracting to SCS; and sharing the construction cost of measures if appropriate. Local sponsors also

are responsible for operating and maintaining the completed project.

Watershed projects help cities, towns, and rural areas stimulate economic growth. Where projects are developed for multiple purposes, both urban and rural areas benefit. Control of flooding, erosion, and siltation reduces risks in farming and lowers maintenance costs for roads and bridges. It also reduces reservoir sedimentation and prevents costly flood damage in urban communities.

Reservoirs built through watershed projects provide opportunities for fishing, boating, swimming, and other recreation. They supply water for irrigation, municipal use, and industry. They also help communities attract new industry and accommodate the expansion of existing industry.

A watershed project has an immediate and positive effect on the economy of a rural community, and it often acts as a catalyst to a wide range of rural development actions.



Matajeek Dam, a multipurpose P.L. 83-566 structure in North Dakota, protects people and cropland from flooding and also provides recreation.

River basin studies and investigations

Public Law 83-566 provides broad authority for cooperation between USDA agencies and other federal and state agencies in river basin planning, surveys, and investigations. SCS directs these activities, working closely with the Forest Service and the Economics and Statistics Service.

Conducted at the request of cooperating federal and state agencies, river basin studies and investigations

- Identify water and land resource problems.
- Analyze the economic base and environmental setting.
- Suggest alternative plans for solving the problems and improving the economy and environment.

These studies and investigations can help coordinate broad resource development in a river basin. They also help coordinate upstream watershed projects with downstream measures taken to solve problems of water and land use.

These cooperative studies provide information essential for planning alternative solutions to special resource problems. In the Colorado River Basin Salinity Control Program, for example, special studies identify ways to reduce the salinity of return flows from irrigation. From these special studies, plans for improved water management can be prepared that provide several benefits—water



As part of the Palouse River Basin Study in eastern Washington and western Idaho, an SCS conservationist (left) discusses fall field conditions with a landowner. A major objective of the Palouse study was to find alternative ways to reduce the severe erosion on much of the basin's cropland.

conservation, economic efficiency, and rural development—in addition to improved water quality. These studies are performed in cooperation with other USDA agencies, the Bureau of Reclamation, and the Environmental Protection Agency.

State and local governments need technical assistance to identify flood hazards and formulate programs for local flood plain management. To meet these needs, SCS carries out detailed flood hazard studies at the request of local governments and through local conservation districts. Priorities are set by the responsible state agency.

Flood hazard study reports delineate flood-prone areas and provide flood profiles for the 10-, 50-, 100-, and 500-year frequency storms. They also identify the values of flood plains and opportunities for restoring and preserving them. At the request of the local community—and with the approval of the appropriate state agency—SCS provides continuing technical assistance after completion of the study.

Resource conservation and development areas

Speeding up resource development and environmental protection in multicounty areas is the aim of the Resource Conservation and Development (RC&D) Program approved by Congress in 1962.

USDA agencies cooperating with SCS help local sponsors—conservation districts, irrigation districts, towns, cities, counties, and others—plan and carry out an RC&D area program. SCS also helps coordinate assistance from state and other federal agencies.

To participate, local sponsors must apply to the Secretary of Agriculture. This application may be favorably received if the governor concurs and if the SCS state conservationist recommends it. If the application is endorsed by the governor and authorized by USDA, SCS assigns an RC&D coordinator to help the sponsors review the problems and opportunities for resource development and environmental protection. From this study a plan of action is prepared. USDA, if it accepts this plan, provides technical and financial aid to help carry it out.

Each RC&D area has its own goals, but most aim to

- Develop land and water resources for agricultural, municipal, or industrial use and for recreation and wildlife.
- Provide information on better uses of soil and water resources for farming, ranching, recreation, housing, industry, transportation, and other land uses.
- Install conservation measures for watershed protection and flood prevention.
- Reduce air and water pollution.

- Speed up conservation work on public land and on individual farms, ranches, and other private holdings.
- Make needed adjustments in land use by encouraging conversion of land to a suitable use, for example, conversion of steep cropland to woodland and wildlife habitat.
- Improve and expand recreation facilities and promote historical and scenic attractions.
- Increase local employment by encouraging existing industries to expand and new ones to locate in the area.
- Improve markets for crops, livestock, and forest products.
- Improve or bring to the area needed community facilities such as hospitals, schools, sewage treatment plants, and roads.
- Encourage training programs to improve job skills.

Emergency watershed protection

SCS provides technical and financial assistance whenever fire, flood, or other natural disaster causes sudden damage in a watershed. To safeguard lives and property, as authorized by the Secretary of Agriculture, SCS undertakes emergency measures to retard runoff and reduce soil erosion and sedimentation.

In addition, SCS provides technical assistance for emergency protection against flooding and for restoration of rural land and



To provide emergency flood protection, a blanket of riprap is applied to a riverbank in Washington.

conservation systems damaged by natural disaster. Funds for the Emergency Conservation Program are available through the Agricultural Stabilization and Conservation Service.

International assistance

SCS provides technical conservation assistance around the world through the Agency for International Development (AID), the Food and Agriculture Organization of the United Nations, and the Joint Commission on Economic Cooperation. This assistance is provided through agreements between USDA and agencies such as AID.

SCS conservationists and other specialists help officials and technicians of other nations to organize conservation programs. They also train them to work with local residents in applying conservation measures. SCS employees serve both short- and long-term assignments in the developing countries.

In addition, each year about 200 students and technicians from developing countries receive conservation training in SCS offices and field locations around the United States.

The Soil Conservation Service. . .

. . . Plans and carries out a national soil and water conservation program through conservation districts (Soil Conservation and Domestic Allotment Act, Public Law 74-46, 49 Stat. 163, 16 U.S.C. 590a-f, April 27, 1935).

. . . Helps plan and carry out watershed protection and flood prevention projects in 11 major watersheds in cooperation with other agencies (Flood Control Act of 1944, Public Law 78-534, 58 Stat. 887, 905, 33 U.S.C. 701b-l, December 22, 1944).

. . . Helps provide emergency watershed protection (Flood Control Act of 1944, Public Law 78-534, Section 216, 58 Stat. 887, 907, 33 U.S.C. 701b-l, December 22, 1944, and Agricultural Credit Act of 1978, Public Law 95-334, Section 403, 92 Stat. 434, 16 U.S.C. 2203, August 4, 1978).

. . . Helps plan and carry out watershed protection and flood prevention projects and river basin investigations in cooperation with other agencies (Watershed Protection and Flood Prevention Act of 1954, Public Law 83-566, 68 Stat. 666, 16 U.S.C. 1001, August 4, 1954).

. . . Administers the Great Plains Conservation Program (Soil Conservation and Domestic Allotment Act, Public Law 84-1021, 70 Stat. 1115, 16 U.S.C. 590p[b], August 7, 1956).

. . . Helps local sponsors plan and carry out multicounty resource conservation and development programs (Food and Agriculture Act of 1962, Public Law 87-703, 76 Stat. 605, 607, 7 U.S.C. 1010, 1011e, September 27, 1962).

. . . Provides technical and financial assistance to landowners to reclaim abandoned surface-mined coal lands in rural areas (Surface Mining Control and Reclamation Act of 1977, Public Law 95-87, Section 406, 91 Stat. 445, 460, 30 U.S.C. 1236, August 3, 1977).

. . . Appraises the soil, water, and related resources of the Nation and develops a soil and water conservation program based on the appraisal (Soil and Water Resources Conservation Act of 1977, Public Law 95-192, 91 Stat. 1407, 16 U.S.C. 2001, November 18, 1977).

. . . Provides assistance to owners and operators of rural land to install and maintain best management practices to control nonpoint source pollution, thus improving water quality (Agriculture, Rural Development, and Related Agencies Appropriations, Fiscal Year 1980, 93 Stat. 835, November 9, 1979).

. . . Helps develop USDA's conservation cost-sharing programs, is responsible for helping to prepare long-term conservation plans

of operation and for designing most of the permanent conservation practices provided by these programs, provides technical assistance to participating farmers and ranchers, and prepares designs and specifications for work undertaken.

- . . . Has primary responsibility for the national cooperative soil survey.

- . . . Heads a national inventory and monitoring activity.

- . . . Makes and coordinates snow surveys for water supply forecasting in the West.

- . . . Appraises potential for outdoor recreation developments; in watershed protection and resource conservation and development areas, helps establish income-producing recreation areas on privately owned land and in public water-based recreation and fish and wildlife areas.

- . . . Gives technical assistance to land users participating in the conservation credit program of the Farmers Home Administration.

- . . . Provides technical assistance in land use planning to communities and units of government and helps them obtain needed technical data on land, water, and related resources.

- . . . Provides assistance in environmental education programs and projects to help young citizens prepare for making responsible decisions on natural resource use.

For more information about Soil Conservation Service programs and assistance, call or visit the SCS office listed in your local telephone directory under United States Government, Department of Agriculture. Assistance provided by SCS programs is available to all eligible applicants regardless of race, sex, religion, color, or national origin.

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